Harvard Medical School
Curriculum Vitae

Date Prepared:	July 30, 2019
Name:	Rizwan Haq
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Place of Birth:	Ottawa, Ontario, Canada

Education

1995	BSc *High Distinction*	Molecular Biology and Genetics	University of Toronto, Ontario Canada
2003	MD, PhD	Medicine, and Institute of Medical Science. PhD advisor: Brent Zanke, MD PhD	University of Toronto

Postdoctoral Training

07/03-06/04	Intern	Internal Medicine	Johns Hopkins Hospital, Baltimore, MD
07/04-06/06	Resident	Internal Medicine	Johns Hopkins Hospital
07/06-06/09	Fellow	Medical Oncology	Dana-Farber Cancer Institute (DFCI)/Partners Cancer Center, Boston, MA
07/09-06/14	Post-doctoral fellow	Melanoma biology Supervisor: David E. Fisher	Massachusetts General Hospital (MGH), Boston, MA

Faculty Academic Appointments

07/09-03/16	Instructor	Medicine	Harvard Medical School (HMS), Boston, MA
03/16-	Assistant Professor	Medicine	Harvard Medical School (HMS), Boston, MA

Appointments at Hospitals/Affiliated Institutions

07/09-06/14	Assistant Physician	Medicine Division of Medical Oncology	Massachusetts General Hospital
07/14-	Associate Physician	Medical Oncology	Dana-Farber Cancer Institute, Boston, MA

Professional Societies

2001	American Society of Hematology	Associate
2003-	Sigma Xi	Member
2004-	American Society of Clinical Oncology	Associate
2007-	American Association of Cancer Research	Associate
2008-2010	Society of General Internal Medicine	Member
2008-	Massachusetts Medical Society	Member

Editorial Activities

***Ad hoc* Reviewer**
Cancer Discovery
Journal of Clinical Investigation
Clinical Cancer Research
Pigment Cell and Melanoma Research
British Journal of Dermatology
Molecular and Cellular Biology
Cancer Research
Nature Medicine

Editorial Advisory Board
Current Melanoma Research & Therapy (2017-2018)
Current Cancer Therapy Reviews (2018-)

Grant Reviewer
Melanoma Research Alliance, 2017
Melanoma Research Foundation 2017-
NIH ZRG1 OBT-D ZRG1 OBT-D (55) R21 ad hoc reviewer, 2018

Honors and Prizes

1995	Merck-Frosst-Genetics Centres of Excellence Studentship	Merck-Frosst	Research
1996-2003	Canadian Institutes of Health Research MD/PhD Studentship	Canadian Institutes of Health	Research
2001	Vision Science Research Studentship	Vision Science	Research
2001	Laidlaw Prize	Institute of Medical Science, Toronto, Ontario Canada	Research
2001	Ivan Smith Memorial Studentship for Adult Oncology	Canadian Cancer Society	Clinical
2001	American Society of Hematology Award	American Society of Hematology	Research
2008	Perry Levy Endowed Fellowship	Dana-Farber Cancer Institute	Research

Report of Funded and Unfunded Projects

Funding Information

Past

2009 Perry Levy Endowed Fellowship
Funding Agency: Dana-Farber Cancer Institute
Role: Investigator
The major goal of this project was to evaluate the role of microphthalmia (MITF) in melanomagenesis and in resistance to existing melanoma therapies.

2010-2011 Research Scholar Award
Funding Agency: American Skin Association
Role: Principal Investigator
The major goal of this study was to identify small molecule inhibitors of microphthalmia, a melanoma oncogene.

2010-2012 Identification of small molecule modulators of microphthalmia (MITF)
Funding Agency: Office of the Director, National Institutes of Health, 5RO3DA03089
Role: Co-Investigator (PI: David E. Fisher)
The major goal of this study was to screen for small molecule inhibitors of microphthalmia, a melanoma oncogene. I designed the screen and was the principal

scientist in evaluating lead compounds for their mechanism of action.

2012-2014 Collaborative Research Project
Funding Agency: Adelson Medical Research Foundation
Role: Research Fellow (PI: David E. Fisher)
The major goal of this project was to identify mechanisms of resistance to B-Raf proto-oncogene, serine/threonine kinase (BRAF) (V600E) therapy in melanoma. I directed two projects, identifying two genes that contributed to BRAF inhibitor resistance. My contributions led to two publications where I was the first author.

2013-2014 Overcoming resistance to B-Raf proto-oncogene, serine/threonine kinase (BRAF) (V600E) targeted therapy in melanoma.
Funding Agency: National Cancer Institute, NIH, 5PO1CA163222
Role: Research Fellow (PI: David E. Fisher)
The major goal of this project was to identify mechanisms of resistance to B-Raf proto-oncogene, serine/threonine kinase (BRAF) (V600E) therapy in melanoma. I directed two projects, identifying two genes that contributed to BRAF inhibitor resistance. My contributions led to two publications where I was the first author.

2017-2018 Bristol-Myers Squibb Immuno-oncology Network Grant
Role: Principal Investigator ($250,000)
The major goal of this project is to understand the role of programmed cell removal in resistance to anti-PD1 immunotherapy

Present

2016-2019 Melanoma Research Alliance: Team Science Award
Role: Co-Principal Investigator ($900,000)
The major goal of this project is to identify the mechanisms by which a novel drug suppresses the activity of MITF, the melanoma oncogene

2017-2020 Stand up to Cancer (SU2C) Innovative Research Grant
Role: Principal Investigator ($750,000)
The goals of this project is to evaluate mechanisms of resistance to anti-PD1 immunotherapy using a new mouse model of melanoma

2017-2020 Melanoma Research Alliance: Young Investigator Award
Role: Principal Investigator ($225,000)
The major goal of this project is to apply a unique method to predict responses to anti-apoptotic inhibitors in melanoma

2017- Prospective International Uveal Melanoma Natural History Database
Role: Investigator
The major goal of this project is characterize the natural history of uveal melanoma patients worldwide

2017-2020 Melanoma Research Foundation: Career Development Award
Targeting genomic mechanisms of resistance to immunotherapy

2018-2021 DFCI-NIBR Drug Discovery & Translational Research Program Award

Report of Local Teaching and Training

Formal Teaching of Residents, Clinical Fellows and Research Fellows (post-docs)

2009-2014	Melanoma Massachusetts General Hospital Internal Medicine Residents	Massachusetts General Hospital One-hour lecture
2009-2014	Melanoma Dana-Farber Cancer Institute/Harvard Cancer Center Hematology-Oncology-Fellows	Massachusetts General Hospital One-hour lecture
2015-present	Melanoma Brigham & Women's Hospital Internal Medicine Residents	Brigham & Women's Hospital One-hour lecture
2015-present	Melanoma Dana-Farber/Harvard Cancer Care Clinical Fellows	Dana-Farber Cancer Institute
2019-present	CB212: Biology of the Cancer Cell Graduate Students, Harvard University	Harvard University One hour lecture and discussant

Laboratory and Other Research Supervisory and Training Responsibilities

2009-2014	Supervision of pre-MD/PhD students Massachusetts General Hospital	Weekly mentorship for 4-24 months
2014-present	Supervision of post-doctoral fellow, Cecile Gstadler	Continuous mentorship
2014-present	Supervision of research assistants	Continuous supervision
2017-present	Megan Inscoe, medical oncology fellow Dana-Farber Cancer Institute	Quarterly mentorship
2017-present	Supervision of post-doctoral fellow, Megha Shettigar	Continuous mentorship

Formally Supervised Trainees and Faculty

2011	Hannah Edelman, MD-PhD candidate, Johns Hopkins Hospital Mentor, Successfully applied to MD-PhD program. Published one manuscript
2012-2014	Daniel Kim, MD-PhD candidate, Yale University School of Medicine, New Haven, Connecticut Mentor, Successfully applied to MD-PhD program. One manuscript in preparation

2017	Christie Ciarlo, PhD student. Dissertation defense committee.

Local Invited Presentations

No presentations below were sponsored by outside entities.

2011, 2012, 2013, 2014	Melanoma Update Melanoma Research Discussion Panel Seminar Department of Dermatology, Massachusetts General Hospital
2013	Adaptive apoptotic signaling limits efficacy of targeted therapy Melanoma Cross-Campus Meeting, Dana-Farber Cancer Institute/Harvard Cancer Center
2014	Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma Massachusetts General Hospital Melanoma Lecture Series Department of Dermatology, Massachusetts General Hospital
2014	Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma Massachusetts General Hospital Program Project Review Department of Dermatology, Massachusetts General Hospital
2017	Center for Precision Medicine: Immunotherapy Dana-Farber Cancer Institute
2017	Cancer Genetics and Melanoma Program Symposium Retreat Small molecule targeting of the melanoma oncogene MITF Dana-Farber/Harvard Cancer Center and MD Anderson Cancer Center
2018	Targeting Adaptive Resistance in Melanoma Dana-Farber Cancer Institute Melanoma Seminar Series
2019	Targeting adaptive resistance in melanoma Dana-Farber Melanoma Seminar Series
2019	Targeting adaptation to targeted therapy using BH3 mimetics Harvard Cell Death Seminar, Harvard Medical School
2019	Identifying and targeting genomic mechanisms of resistance to anti-PD-1 therapy Center for Immuno-Oncology, Dana-Farber Cancer Institute
2018	Maximizing the durability of targeted therapies Department of Molecular and Cellular Oncology, Dana-Farber Cancer Institute Retreat
2019	A small molecule that targets cancers with dysregulated *KEAP-NRF2* signaling Broad Institute of Harvard and MIT, Program in Drug Resistance
2019	A small molecule that targets cancers with dysregulated *KEAP-NRF2* signaling Broad Institute of Harvard and MIT, Center for the Development of Therapeutics
2018	A small molecule that targets cancers with dysregulated *KEAP-NRF2*

signaling
Dana-Farber/Harvard Cancer Center Melanoma Program Retreat
Symposium

Report of Regional, National and International Invited Teaching and Presentations

Invited Presentations and Courses

Those presentations below sponsored by outside entities are so noted and the sponsor(s) is (are) identified.

Regional

Abstract Oral Presentations

2012 Overcoming intrinsic resistance to BRAF inhibitors in melanoma by targeting apoptotic pathways. Chabner Colloquium
Boston, MA

2013 Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma
Melanoma Special Seminar
Yale University Cancer Center, New Haven, CT

2013 New Frontiers in Cancer Drug Development
Invited speaker, Massachusetts General Hospital
Boston, MA

2014 ERBB3 as a therapeutic target in melanoma
Boston, MA (Novartis)

2017 Identify and overcoming resistance to immunotherapy
Cambridge, MA (Tango Therapeutics)

2019 A small molecule that targets cancers with dysregulated KEAP-NRF2 signaling
Tango Therapeutics, Cambridge, MA

2019 Drug Resistance Mini-Symposium, Atlanta, GA
American Association of Cancer Research Annual Meeting

National

Abstract Oral Presentations

2010 ERBB3 and ERBB4 as therapeutic targets in melanoma
Collegeville, PA (GlaxoSmithKline)

2010 Role of ERBB3 in melanoma
Boston, MA (Wyeth Pharmaceuticals)

2010 Integration of bioinformatic and functional screens identify novel approaches to target MITF, a melanoma oncogene, Oncology Grand Rounds
University of North Carolina-Chapel Hill

2012 Adaptive Metabolic Reprogramming Confers Resistance to BRAF Inhibitors.
Society of Melanoma Research Annual Meeting
Los Angeles, California

2012 ERBB3 and ERBB4 as therapeutic targets in melanoma
Cambridge, MA (Aveo Pharmaceuticals)

2013 Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma

Vanderbilt-Ingram Cancer Center Special Seminar
Vanderbilt University, Nashville, TN

2013 Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma
Hematology-Oncology Grand Rounds
University of North Carolina-Chapel Hill

2013 Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma
Hematology-Oncology Seminar Series
Stanford University Cancer Institute, Palo Alto, CA

2013 Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma
University of Pennsylvania Abramson Cancer Institute Seminar Series
University of Pennsylvania, Philadelphia, PA

2014 Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma
Hematology-Oncology Grand Rounds
University of North Carolina-Chapel Hill

International

2013 Intrinsic and adaptive resistance to BRAF inhibitor therapies in melanoma
Hematology-Oncology Grand Rounds
Princess Margaret Hospital Cancer Centre, Toronto, Canada

Report of Clinical Activities and Innovations

Current Licensure and Certification

2008- Massachusetts Medical License

Practice Activities

2009-2014	Ambulatory Care (Melanoma Center)	Massachusetts General Hospital	One session per week
2009-2014	Inpatient Care	Massachusetts General Hospital	2 weeks per year
2014-	Ambulatory Care (Melanoma Center)	Dana-Farber Cancer Institute	1 session per week

Report of Technological and Other Scientific Innovations

Cyclin-dependent-kinase 2-related kinase associated with acute leukemia	As a member of the Zanke lab, my colleagues and I identified a gene that was recurrently dysregulated in leukemia. World International Property Organization Patent Application WO/2000/012719, filed 2000
A method for regulating skin pigmentation	As a member of the Fisher lab, my colleagues and I developed an approach to regulate skin pigmentation and isolated several candidate compounds that modulate pigmentation. World International Property

	Organization Patent Application. WO/2013/033520, filed 2013
Approach To Classification And Treatment Of Melanomas Using Inhibitors Of Mitochondrial Metabolism	Assigned U.S. Patent No. 9,937,161, issued on April 10, 2018
Inhibitors of the MITF molecular pathway	Assigned U.S. Patent No 9745261B2, issued 2014-06-2010
Combinatorial compositions and methods for treatment of melanoma	Assigned U.S. Patent No 9937161B2, issued 2014-03-06 and World patent, issued 2014-03-06

Report of Scholarship

Peer-reviewed publications in print or other media

Research investigations

1. Waring JD, **Haq R**, Tamai K, Sabourin LA, Ikeda JE, Korneluk RG (1996). Investigation of myotonic dystrophy kinase isoform translocation and membrane association. *J Biol Chem*. 271(25): 15187-93.

2. Midmer M, **Haq R**, Squire JA, Zanke BW (1999). Identification of NKIAMRE, the human homologue to the mitogen-activated protein kinase-/cyclin-dependent kinase-related protein kinase NKIATRE, and its loss in leukemic blasts with chromosome arm 5q deletion. *Cancer Res*. 59(16):4069-74.

3. Jones NL, Islur A, **Haq R**, Mascarenhas M, Karmali MA, Perdue MH, Zanke BW, Sherman PM (2000). Escherichia coli Shiga toxins induce apoptosis in epithelial cells that is regulated by the Bcl-2 family. *Am J Physiol Gastrointest Liver Physiol*. 278(5):G811-9.

4. **Haq R**, Randall S, Midmer M, Yee K, Zanke B (2001). NKIATRE is a novel conserved cdc2-related kinase. *Genomics*. 71(2):131-41.

5. **Haq R**, Halupa A, Beattie BK, Mason JM, Zanke BW, Barber DL (2002). Regulation of Erythropoietin-induced STAT Serine Phosphorylation by Distinct Mitogen-activated Protein Kinases. *J Biol Chem*. 277(19):17359-17366.

6. Ho JM, Nguyen MH, Dierov JK, Badger KM, Beattie BK, Tartaro P, **Haq R**, Zanke BW, Carroll MP, Barber DL (2002). Chromosomal Translocation involving TEL-JAK2 constitutively activate the ERK, SAP kinase and p38 signaling pathway. *Blood* 100(4):1438-1448.

7. **Haq R**, Brenton JD, Finan D, Takahashi M, Rottapel R, Zanke BW (2002). Constitutive p38HOG Mitogen-activated Protein Kinase Activation Induces Permanent Cell Cycle Arrest and Senescence. *Cancer Research*, September 1; 62: 5076-5082.

8. McGill GG, **Haq R**, Nishimura EK, Fisher DE (2006). c-met expression is regulated by MITF in the melanocyte lineage. *Journal of Biological Chemistry*. 281(15):10365-73.

9. Yokoyama S*, Woods SL*, Boyle G*, Aoude LG*, MacGregor S*, Zismann V*, Gartside M, Cust AE, **Haq R**, et al. (2011). A novel recurrent mutation in MITF predisposes to familial and sporadic melanoma. *Nature*, Nov 13;480(7375):99-103. *co-first authors

10. Li J, Song JS, Bell JA, Tran TT, **Haq R**, Liu H, Love KT, Langer R, Anderson DG, Larue L, Fisher DE (2012). YY1 regulates melanocyte development and function by co-operating with the Waardenburg syndrome gene MITF, *PLOS Genetics*, 8(5):e1002688.

11. Shoag J, **Haq R**, Zhang M, Liu L, Rowe GC, Jiang A, Koulisis N, Farrel C, Amos CI, Wei Q, Lee JE, Zhang J, Kupper TS, Qureshi AA, Cui R, Han J, Fisher DE, Arany Z (2013). PGC-1 coactivators regulate MITF and the tanning response. *Molecular Cell*, 49(1):145-57.

12. **Haq R**, Yokoyama S, Hawryluk EB, Jönsson GB, Frederick DT, McHenry K, Porter D, Tran TN, Love KT, Langer R, Anderson DG, Garraway LA, Duncan LM, Morton DL, Hoon DS, Wargo JA, Song JS, Fisher DE (2013). BCL2A1 is a lineage-specific antiapoptotic melanoma oncogene that confers resistance to BRAF inhibition. *Proc Natl Acad Sci U S A*, 110(11):4321-6.

13. **Haq R**, Shoag S, Andreu-Perez P, Yokoyama S, Edelman H, Hurley AD, Nellore A, Wargo JA, Song JS, Fisher DE*, Arany Z*, Widlund HR* (2013). Oncogenic BRAF regulates oxidative metabolism via PGC1α and MITF. *Cancer Cell,* Mar 18;23(3):302-15.

14. Konieczkowski DJ, Johannessen CM, Abudayyeh O, Kim JW, Cooper ZA, Piris A, Frederick DT, Barzily-Rokni M, Straussman R, **Haq R**, **Fisher DE**, Mesirov JP, Hahn WC, Flaherty KT, Wargo JA, Tamayo P, Garraway LA (2014). A melanoma cell state distinction influences sensitivity to MAPK pathway inhibitors. *Cancer Discov*. 2014 Jul;4(7):816-27.

15. Frederick DT, Fragomeni RA, Hoff T, Cooper ZA, **Haq R**, Cho DC, Panka DJ, Cusack JC, Flaherty KT, Fisher DE, Mier JW, Wargo JA, Sullivan RJ (2014). Overcoming de novo resistance to BRAF inhibition using BH3-mimetics in BRAF mutant melanoma. *PLoS One.* Jul 1;9(7):e101286.

16. Faloon PW, Bennion M, Weiner WS, Smith RA, Wurst J, Weiwer M, Hartland C, Mosher CM, Johnston S, Porubsky P, Neuenswander B, Dandapani S, Munoz B, Schoenen FJ, Metkar S, **Haq R**, Fisher DE, Aubé J, Palmer M, Schreiber SL (2014). A Small Molecule Inhibitor of the MITF Molecular Pathway. *Probe Reports from the NIH Molecular Libraries Program [Internet]. Bethesda (MD)*

17. Lauss M, **Haq R**, Cirenajwis H, Phung B, Harbst K, Staaf J, Rosengren F, Holm K, Aine M, Jirström K, Borg Å, Busch C, Geisler J, Lønning PE, Ringnér M, Howlin J, Fisher DE, Jönsson G (2015). Genome-Wide DNA Methylation Analysis in Melanoma Reveals the Importance of CpG Methylation in MITF Regulation. *J Invest Dermatol*. 2015 Jul;135(7):1820-8.

18. Gee MS, Ghazani AA, **Haq R**, Wargo JA, Sebas M, Sullivan RJ, Lee H, Weissleder R (2017). Point of care assessment of melanoma tumor signaling and metastatic burden from μNMR analysis of tumor fine needle aspirates and peripheral blood. *Nanomedicine*. 2017 Apr;13(3):821-828.

19. Wang DY, Eroglu Z, Ozgun A, Leger PD, Zhao S, Ye F, Luke JJ, Joseph RW, **Haq R**, Ott PA, Hodi FS, Sosman JA, Johnson DB, Buchbinder EI (2017). Clinical Features of Acquired Resistance to Anti-PD-1 Therapy in Advanced Melanoma. *Cancer Immunol Res*. May;5(5):357-362.

20. Gee MS, Ghazani AA, Haq R, Wargo JA, Sebas M, Sullivan RJ, Lee H, Weissleder R (2017). Point of care assessment of melanoma tumor signaling and metastatic burden from μNMR analysis of tumor fine needle aspirates and peripheral blood. *Nanomedicine*. Apr;13(3):821-828.

21. Lee H, Hodi FS, Giobbie-Hurder A, Ott PA, Buchbinder EI, Haq R, Tolaney SM, Barroso-Sousa R, Zhang K, Donahue H, Davis M, Gargano ME, Kelley KM, Carroll RS, Kaiser UB, Min L (2017). Characterization of Thyroid Disorders in Patients Receiving Immune Checkpoint Inhibition Therapy. *Cancer Immunol Res* 5(12):1133-1140.

22. Miao D, Margolis C, Vokes N, Liu D, Weiner-Taylor A, Wankowicz S, Adeegbe D Keliher D, Schilling B, Tracy A, Manos M, Chau N, Hanna GJ, Polak P, Rodig S, Signoretti S, Sholl LM, Engelman JA, Getz G, Jänne P, Haddad RI, Choueiri T, Barbie D, **Haq R**, Awad MM, Schadendorf D, Hodi FS, Bellmunt J, Wong KK, Hammerman P, Van Allen E (2018). Genomic correlates of response to immune checkpoint blockade in microsatellite-stable solid tumors. *Nature Genetics*, Sep;50(9):1271-1281.

23. Naik GS, Waikar SS, Johnson A, Buchbinder EI, **Haq R**, Hodi FS, Schoenfeld J, Ott PA (2019) Complex Inter-relationship of Body Mass Index, Gender and Serum Creatinine on Survival: Exploring the Obesity Paradox in Melanoma Patients Treated with Immune Checkpoint Inhibition. *Journal for ImmunoTherapy of Cancer*, Mar 29;7(1):89.

24. Jerby-Arnon L, Shah P, Cuoco MS, Rodman C, Su MJ, Melms JC, Leeson R, Kanodia A, Mei S, Lin JR, Wang S, Rabasha B, Liu D, Zhang G, Margolais C, Ashenberg O, Ott PA, Buchbinder EI, Haq R, Hodi FS, Boland GM, Sullivan RJ, Frederick DT, Miao B, Moll T, Flaherty KT, Herlyn M, Jenkins RW, Thummalapalli R, Kowalczyk MS, Cañadas I, Schilling B, Cartwright ANR, Luoma AM, Malu S, Hwu P, Bernatchez C, Forget MA, Barbie DA, Shalek AK, Tirosh I, Sorger PK, Wucherpfennig K, Van Allen EM, Schadendorf D, Johnson BE, Rotem A, Rozenblatt-Rosen O, Garraway LA, Yoon CH, Izar B, Regev A (2018). A Cancer Cell Program Promotes T Cell Exclusion and Resistance to Checkpoint Blockade. *Cell,* Nov 1;175(4):984-997*.*

25. Montero J, Kim DJ, Sadowicz D, Miles W, Manos M, Secrist PJ, Tron AE, Flaherty K, Hodi FS, Yoon CH, Letai A, Fisher DE, **Haq R** (2019). Destabilization of *NOXA* mRNA as a common resistance mechanism to targeted therapies. *Nature Communications*, in press.

26. Gstalder G, Liu D, Miao D, Pancholi P, Shettigar M, Buchbinder M, Carter S, Manos M, Rojas-Rudilla V, Brennick R, Johnson DJ, Gjini E, Lako A, Rodig R, Yoon C, Freeman GJ, Hodi FS, Van Allen EM, Haq R (2019). Loss-of-function mutations in *FBXW7* lead to acquired resistance to PD-1 blockade, *Nature Medicine*, in revision.

27. Persky N, Hernandez D, Do Carmo M , Brenan L, Cohen O , Kitajima S, Nayar U, Walker A, Pantel S, Lee Y, Cordova J, Zhu C, Hayes T, Ram P, Pancholi P, Mikkelsen T, Barbie D, Yang X, Haq R, Piccioni F, Root D, Johannessen C (2019). Defining the landscape of ATP-competitive inhibitor resistance residues in protein kinases. *Nature Structural & Molecular Biology*, in revision.

28. Slyper M, Porter CBM, Ashenberg O, Waldman J, Wakiro I, Smith-Rosario G, Wu J, Drokhlyansky E, Dionne D, Vigneau S, Jané-Valbuena J, Patel A, Karlstrom A, Gritsch S, Waghray A, Gohil SH, Tsankov A, Jerby-Arnon L, Cohen O, Klughammer J, Rosen Y, Gould J, Li B, Wu CJ, Izar B, Haq R, Hodi FS, Yoon CH, Hata A, Suvà M, Bueno R, Stover EH, Clay MR, Dyer MA, Collins NB, Wagle N, Rotem A, Johnson BE, Rozenblatt-Rosen O, Regev A (2019). A single-cell and single-nucleus RNA-Seq toolbox for fresh and frozen human tumors, submitted.

29. Kurppa KJ, Liu Y, Zhang T, Fan M, Xie Y, Lim K, Cejas P, Haikala H, Wang H, Ficarro SB, Bahcall M, Shin BH, Thai T, Gao Y, Boettcher S, Wilkens MK, Tillgren ML, Xu M, Choi J, Ebert B, Barbie DA, Gokhale PC, Kirschmeier PT, Marto JA, Camargo FD, Haq R, Long HW, Gray NS, Jänne PA (2019). YAP promotes treatment induced tumor dormancy through transcriptional repression of BMF in *EGFR* mutant NSCLC. *Cancer Cell*, submitted.

Other peer-reviewed publications

All publications in this section are peer-reviewed.

1. **Haq R**, Zanke B (1998). Inhibition of apoptotic signaling pathways in cancer cells as a mechanism of chemotherapy resistance. *Cancer Metastasis Rev*. 17(2):233-9.
2. **Haq R** (2003). Aging research: its time has come. *Clin Invest Med*. 26(3):116-20.
3. Pruktin JM, **Haq R** (2006). A dish best served hot. *Am J Medicine* 119(4):307-9.
4. **Haq R** and Fisher DE (2008). Pigmentation pathways and Micropthalmia-Associated Transcription Factor as new targets in melanoma, in Agarwala SS and Sondak VK, editors. Melanoma: Translational Research and Emerging Therapies. New York: CRC Press, 2008, p. 99-110.
5. **Haq R**, Fisher DE (2011). Biology and clinical relevance of the micropthalmia family of transcription factors in human cancer. *Journal of Clinical Oncology*, 29(25):3474-82.
6. **Haq R** and Hodi S (2012). Melanoma. *Hospital Physician.*
7. **Haq R** and Fisher DE (2013). Targeting melanoma by small molecules: Challenges ahead *Pigment Cell and Melanoma Research*, Jul;26(4):464-9.
8. **Haq R** and Fisher DE (2013). Improving apoptotic responses to targeted therapy. *Oncotarget*, Sep;4(9):1331.
9. **Haq R**, Fisher DE, Widlund HR (2014). Molecular pathways: BRAF induces bioenergetic adaptation by attenuating oxidative phosphorylation. *Clin Cancer Res.* 20(9):2257-63.
10. **Haq R**, **Flaherty** K (2014). The melanoma metastasis X-factor. Pigment Cell Melanoma Res. 27(5):698.

11. **Haq R** (2018). Trapping Cancers as They Adapt to Survive. *Cancer Discovery* 7(11):1216-1217.

Abstracts and Conference Proceedings

1. Naik GS, Buchbinder EI, Haq R, Hodi FS, Ott PA (2018). Association of pre-treatment ALC with survival outcomes among melanoma patients treated with anti-PD-1/CTLA-4 combination and anti-PD-1 monotherapy. European Society of Medical Oncology, Munich, Germany.
2. Buchbinder EI, Weirather J, Manos MP, Brennick RC, Ott PA, Haq R, Izar B, Hodi FS (2019). Characterization of the genetics of mucosal melanoma in patients treated with immunotherapy. American Society of Clinical Oncology Annual Meeting 2019, Atlanta, GA.